

USING GIS AND GEO-VISUALIZATION TOOLS FOR LAND USE AND TRANSPORTATION PLANNING

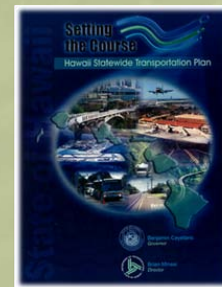
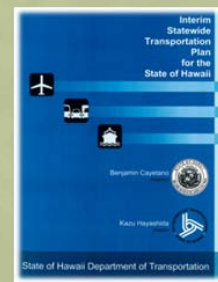
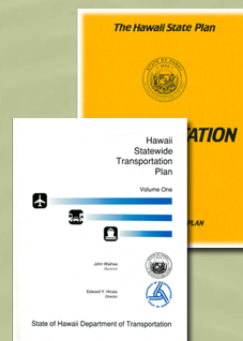
HCPO Conference 2011
Lihue, Kauai

Planning for Healthy & Livable
Communities



HAWAII *Statewide* TRANSPORTATION PLAN

- This is the sixth update of the HSTP and it has a forecast year of 2035
- The first HSTP was prepared in 1961
- The most recent HSTP was prepared in 2002 for a forecast year of 2025



Emerging Issues Papers

- Global Warming
- Aging Population and Transportation
- Fuel and Energy
- Land Use Planning
- Planning and Design
- Security
- System Preservation
- Financial
- Environmental Coordination



HAWAII STATEWIDE TRANSPORTATION PLAN

Hawaii's Multi-Modal and Inter-Modal Network

Volume 1:
Making Connections

Volume 2:
Emerging Issue
Papers

Volume 3:
Forecast Reports and
Public Involvement
Summaries



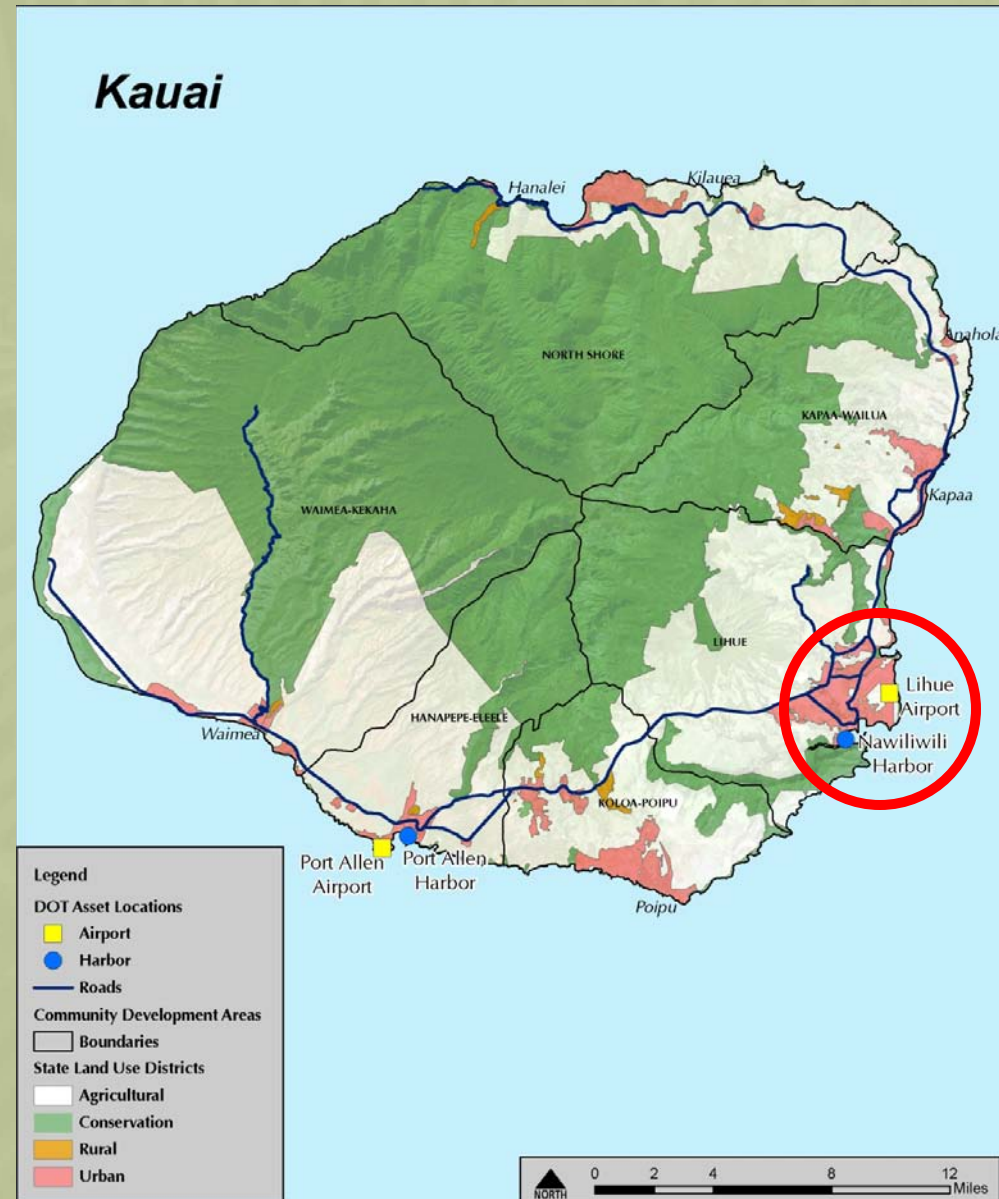
OUTREACH ACTIVITIES

- Public Opinion Survey
- Interviews with Divisions on existing systems
- HSTP Project Website
- Stakeholder meetings
- Countywide Public Information Meetings

Synchronized Planning

Early ideas of “**Synchronized Planning**” from Glenn Soma lead to David Shimokawa and the DOT-STP Office to further conceptualize **Integrated Sub-Regional Area Planning**, and how GIS and Geo-visualization tools can support linkages between Transportation Planning and Land Use Planning

Map: DOT Asset Locations and Current State Land Use Districts – Kauai County, Hawaii



Integrated Sub-Regional Area Planning

Coordinate Transportation and Land Use Through ISAP

Start the ISAP process in high growth and other sub-areas of statewide concern.

Visioning Process

Create system vision, goals, objectives & performance measures. Proceed with targeted sub-areas.

Impact Analysis

Draw from GIS overlays to identify indirect and cumulative impacts.

Mitigations

Identify environmental mitigation opportunities.
Test performance measures.
Revisit vision and goals.



Integrated Sub-Regional Area Planning Concept



1

Oahu



Kalaheo Harbor & Airport coordination with Kapolei Harborside and Kapolei West developments

2



Connectivity between Kahului Airport, Hanalei Bay, Lahaina Bypass, and future development.



Connectivity between Kahului Airport, Hanalei Bay, Lahaina Bypass, and future development.

Maui

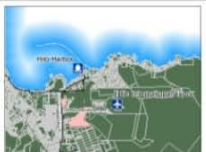
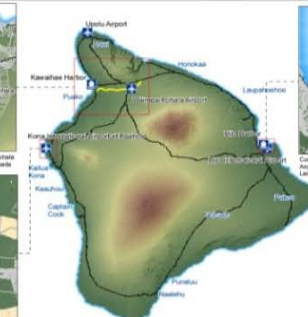
3



Connectivity between Kona International Airport, Queen Kahehewa Hwy, and future development.



Connectivity between Kona International Airport, Queen Kahehewa Hwy, and future development.



Connectivity between Kona International Airport, Queen Kahehewa Hwy, and future development.

Hawaii

4



Connectivity between Lihue Airport, Kapalee Hwy, and future development.



Connectivity between Lihue Airport, Kapalee Hwy, and future development.

Kauai

5



Molokai

6



Lanai

Legend



State DOT Harbors



State DOT Airports



State Roads



Not to Scale

This map is intended for planning purposes only and should not be used for spatial reference. The maps are based on information available at the time of creation and are subject to future changes.
Created by: State of Hawaii, Department of Transportation
Statewide Transportation Planning Office
Date: 05/14/09

STP GIS Layers

Future
Development
Scenarios

Harbor Master
Plan

Bicycle and
Pedestrian Trail
Corridors

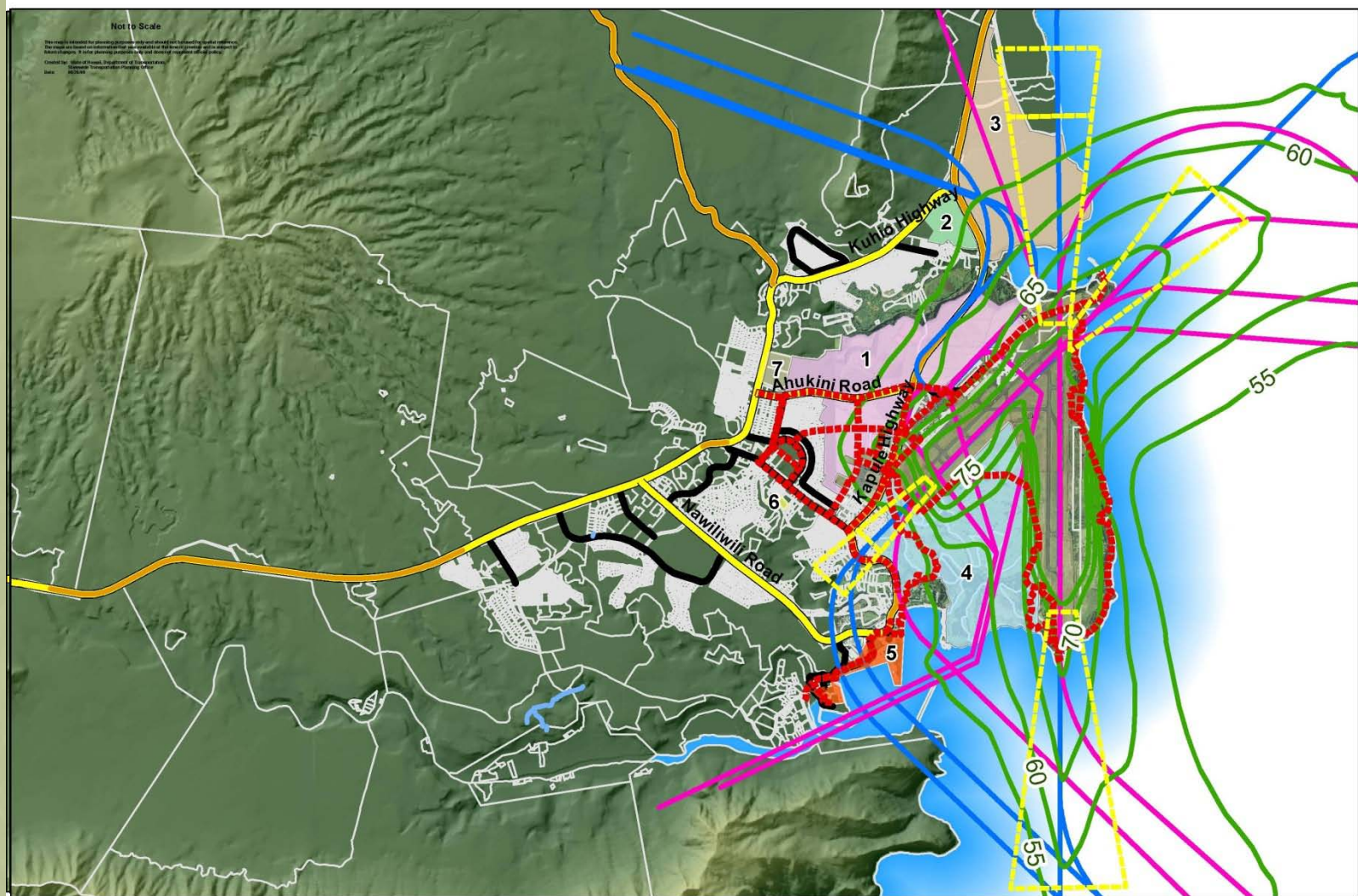
Roads

Flight Tracks

Noise Contours

Approach
Trapezoids

Base Map



Island of Kauai
Lihue Area Developments with
Lihue Airport Noise Contours
and Flight Tracks

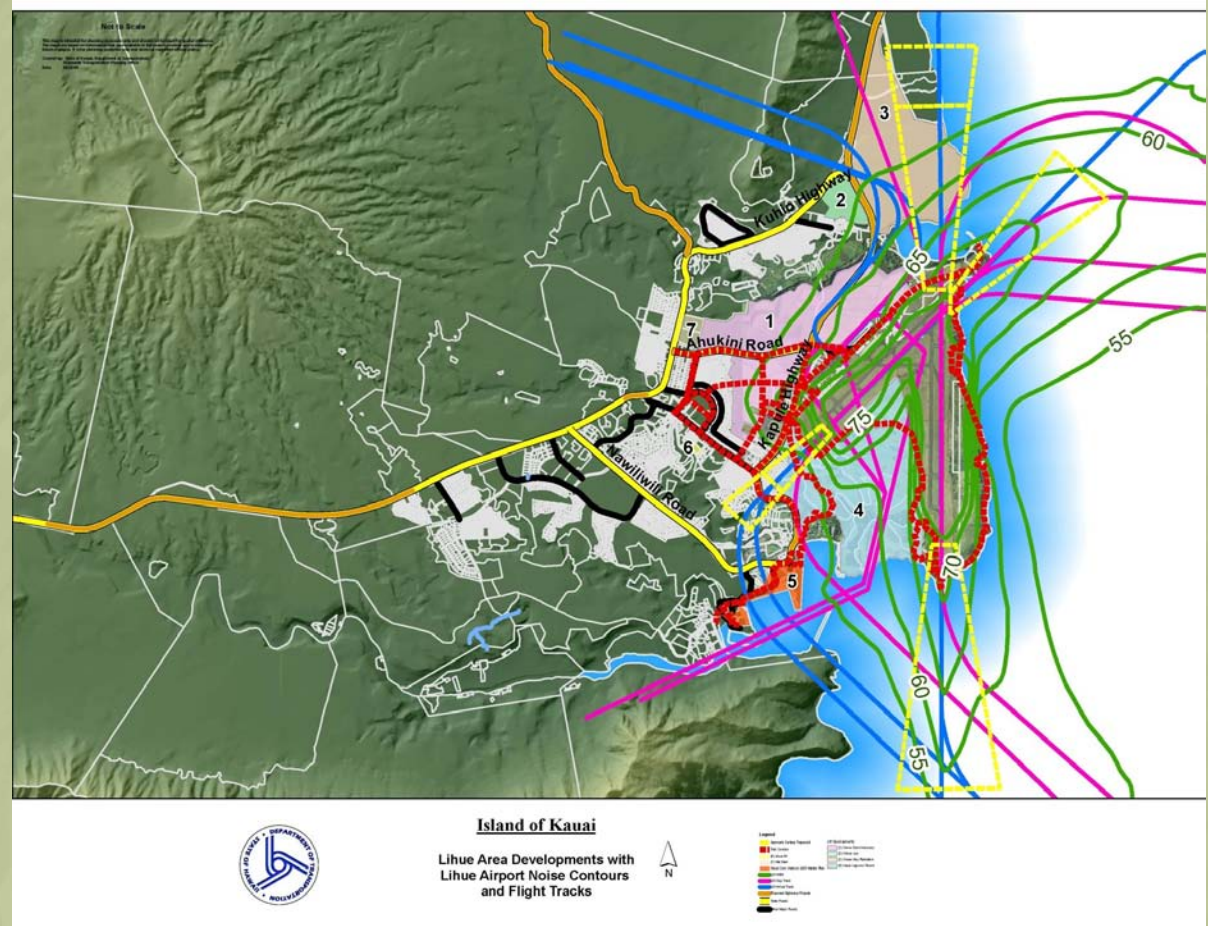


Geospatial Technologies



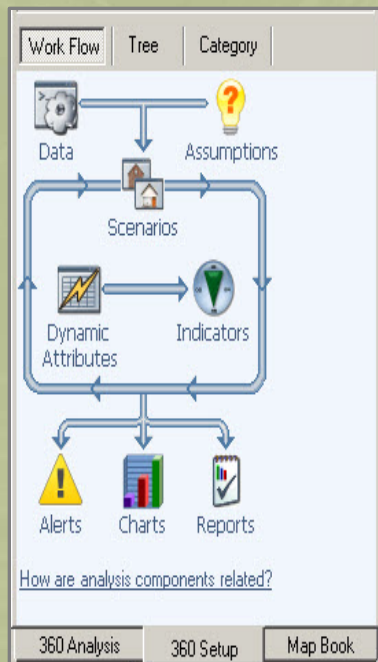
These technologies provide the Public and Professionals tools to communicate the connections between:

- Existing land use and zoning
- Ongoing and future transportation projects
- Potential future development scenarios



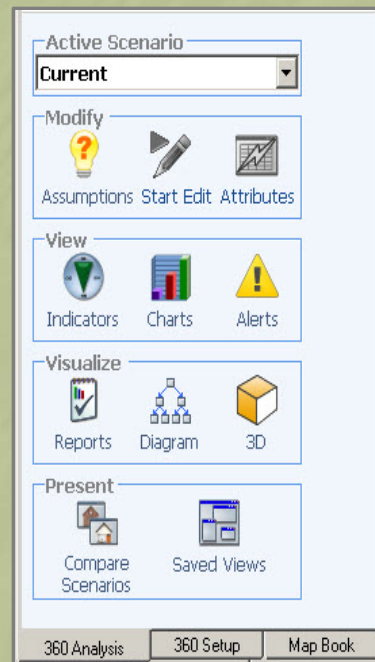
communityviz®

SETUP



Interactive workflow guide makes setup process straightforward

ANALYSIS



Graphical interface provides “clickable icons” to explore alternatives

What is CommunityViz?

A decision-based software that evaluates competing future year growth scenarios for a region. CommunityViz is fully integrated with ESRI's ArcGIS software and Google Earth

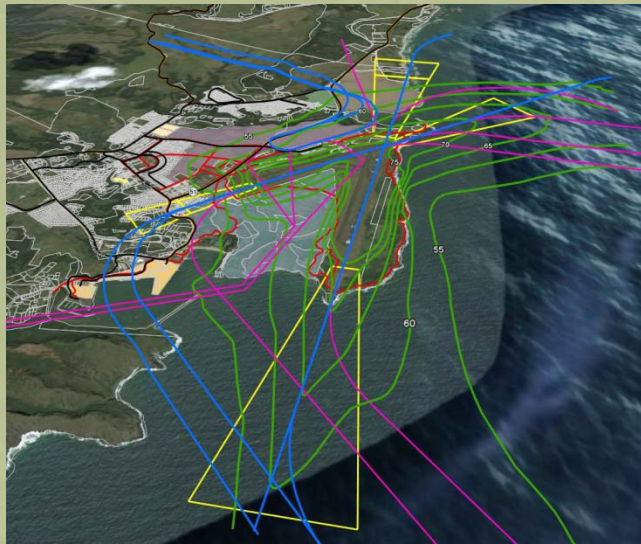


These tools provide the ability to further define, analyze, and communicate these candidate Integrated Sub-Regional Area Plans

Statewide Integrated Sub-Area Regional Conceptual Plans



Data Integration & Overlay Analysis



Geo-visualization

KML/GIS DATA LAYERS



**Aerial
Imagery**



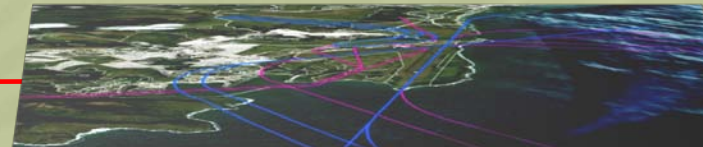
**TMK Parcel
Data**



**Noise
Contours**



**Aircraft
Approach
Surfaces**



**Flight
Tracks**



**Roadway
Projects**

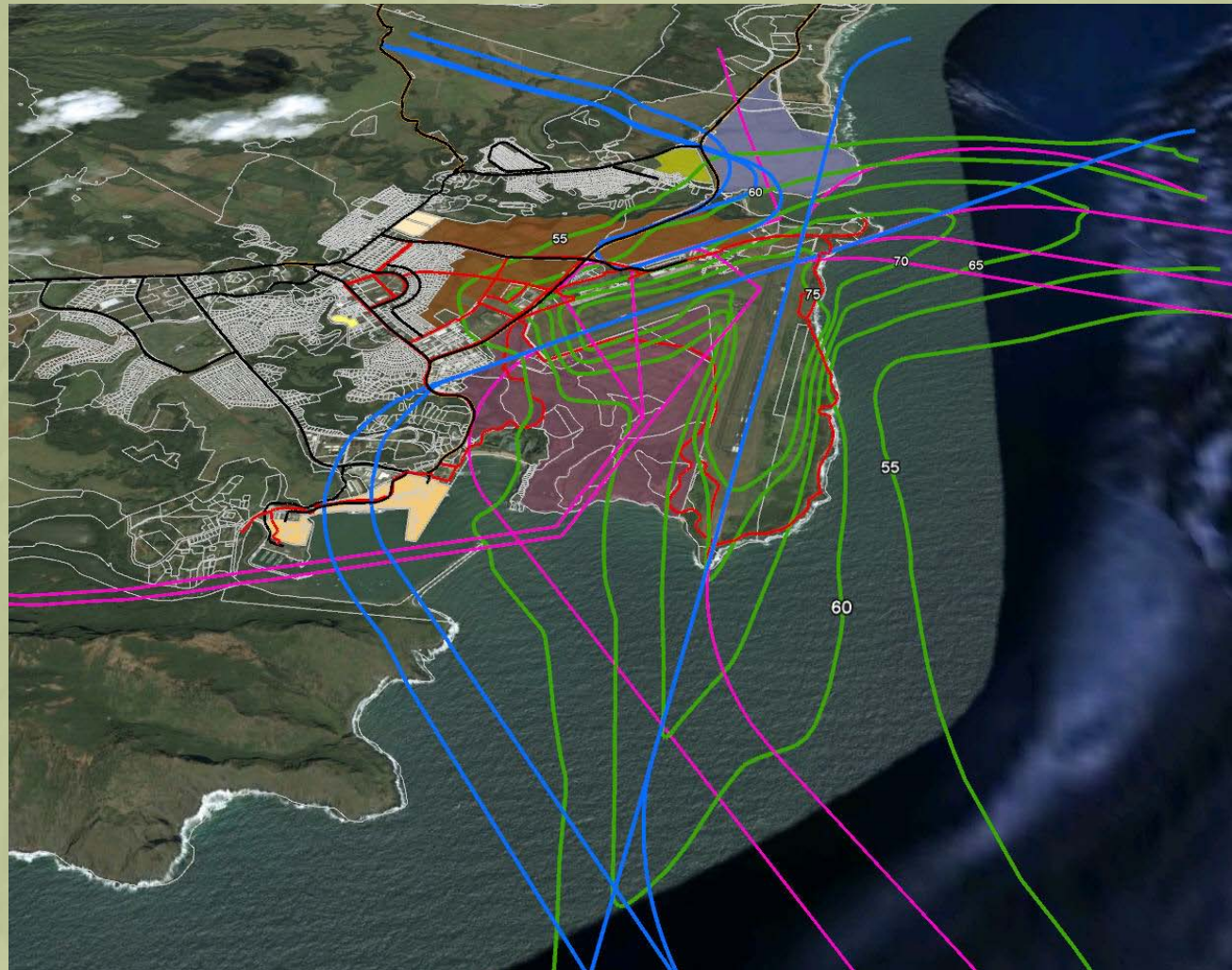


**Future
Development
Scenarios**

Lihue Area Visualization

Using GIS and Regional Planning Tools like CommunityVIZ a visualization can be generated that is compatible in multiple media formats.

This visualization was captured using Google Earth Pro and exported to a Windows Media file.



Questions?

Special thanks to:

- **Hawaii DOT Statewide Transportation Planning Office**
- **SSFM International**
- **HCPO Conference Organizers**

Mahalo!

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